

# 2SK258(H)

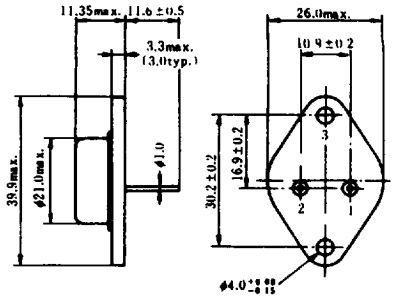
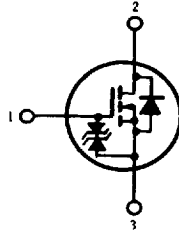
HITACHI/(OPTOELECTRONICS)

## SILICON N-CHANNEL MOS FET

**HIGH SPEED POWER SWITCHING,  
HIGH FREQUENCY POWER AMPLIFIER**

### ■ FEATURES

- High Speed Switching.
- High Cutoff Frequency.
- Enhancement-Mode.
- Suitable for Switching Regulator, DC-DC Converter, RF Amplifiers, and Ultrasonic Power Oscillators.



1. Gate  
2. Drain  
3. Source  
(Case)

(JEDEC TO-3)

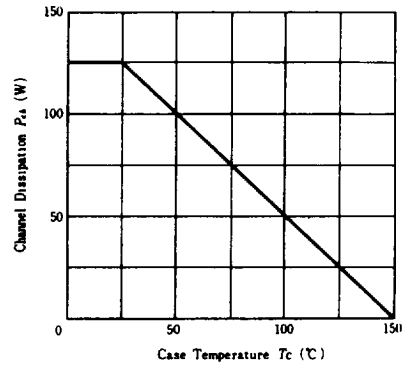
(Dimensions in mm)

### ■ ABSOLUTE MAXIMUM RATINGS ( $T_a=25^\circ\text{C}$ )

Item	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DS}$	250	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Drain Current	$I_D$	8	A
Body-Drain Diode Reverse Drain Current	$I_{DR}$	8	A
Channel Dissipation	$P_{ch}$ *	125	W
Channel Temperature	$T_{ch}$	150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	$-65 \sim +150$	$^\circ\text{C}$

\*Value at  $T_c=25^\circ\text{C}$

### POWER VS. TEMPERATURE DERATING

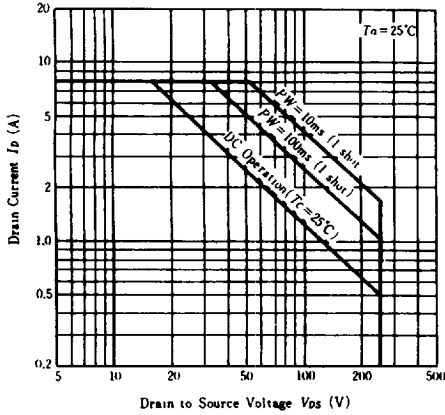


### ■ ELECTRICAL CHARACTERISTICS ( $T_a=25^\circ\text{C}$ )

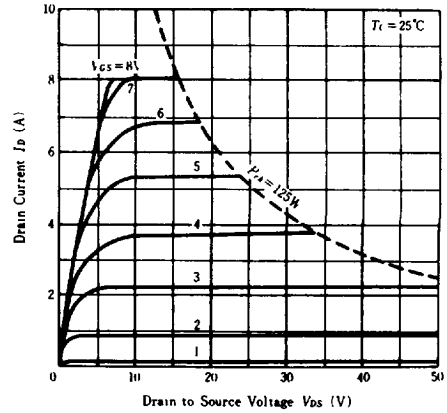
Item	Symbol	Test Condition	min.	typ.	max.	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=10\text{mA}, V_{GS}=0$	250	—	—	V
Gate-Source Breakdown Voltage	$V_{(BR)GSS}$	$I_G=\pm 100\mu\text{A}, V_{DS}=0$	$\pm 20$	—	—	V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=200\text{V}, V_{GS}=0$	—	—	1.0	mA
Gate-Source Cutoff Voltage	$V_{GS(off)}$	$I_D=10\text{mA}, V_{DS}=10\text{V}$	0.4	—	3.0	V
Static Drain-Source On State Resistance	$R_{DS(on)}$	$I_D=4\text{A}, V_{GS}=15\text{V}^*$	—	0.8	1.12	$\Omega$
Drain-Source Saturation Voltage	$V_{DS(sat)}$	$I_D=4\text{A}, V_{GS}=15\text{V}^*$	—	—	4.5	V
Forward Transfer Admittance	$ y_{fs} $	$I_D=3\text{A}, V_{DS}=10\text{V}^*$	0.9	1.3	—	S
Input Capacitance	$C_{iss}$	$V_{GS}=-5\text{V}, V_{DS}=10\text{V}, f=1\text{MHz}$	—	800	—	pF
Output Capacitance	$C_{oss}$		—	350	—	pF
Turn-on Time	$t_{on}$	$I_D=2\text{A}, V_{GS}=15\text{V}$	—	25	—	ns
Turn-off Time	$t_{off}$		—	140	—	ns

\*Pulse Test

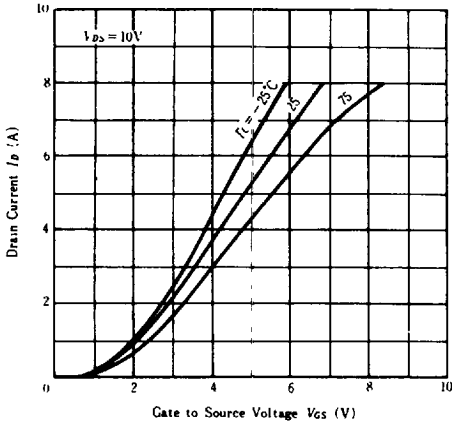
**MAXIMUM SAFE OPERATION AREA**



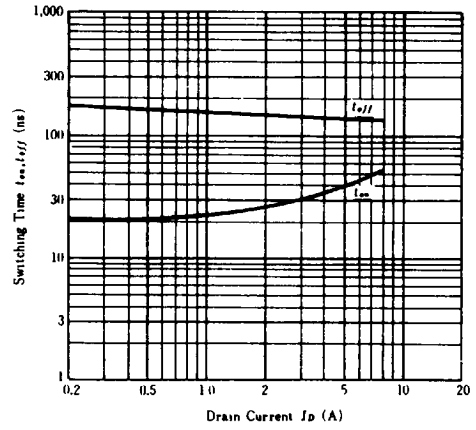
**TYPICAL OUTPUT CHARACTERISTICS**



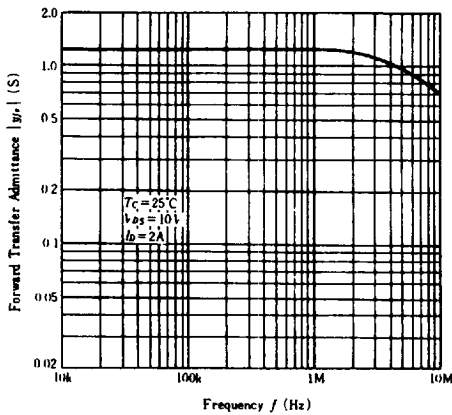
**TYPICAL TRANSFER CHARACTERISTICS**



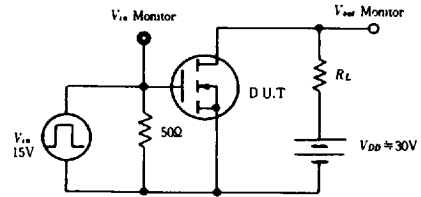
**SWITCHING TIME VS. DRAIN CURRENT**



**FORWARD TRANSFER ADMITTANCE VS. FREQUENCY**



**SWITCHING TIME TEST CIRCUIT**



**WAVEFORMS**

